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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,147	07/08/2003	Klaus Kunze	KOV-004	2078

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EXAMINER	
TRINH, MICHAEL MANH	
ART UNIT	PAPER NUMBER
2822	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/616,147	KUNZE ET AL.	
	Examiner	Art Unit	
	Michael Trinh	2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 April 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *41,43-44,46,51,53-54,56-65, 96-101,103-119,121-150,152-205* is/are pending in the application.

4a) Of the above claim(s) *See Continuation Sheet* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *41,43,44,46,51,53-54,56-65,96,100-101,103-117,124-132,135-143,149-150,152-154,160-174,176-184,192-197,204-205* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims withdrawn from consideration are 97,98,118,119,121-123,133,134,144-148,155-159,175,185-191 and 198-203.

DETAILED ACTION

*** This office action is in response to Applicant's RCE and Response filed April 28, 2009. Claims 41,43-44,46,51,53-54,56-65, 96-101,103-119,121-150,152-205 are pending, in which claims 97-98,118-119,121-123,133-134,144-148,155-159,175,185-191,198-203 are non-elected.

*** The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Objection

1. Claims 97,126,154 are objected to for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re claims 97,175 "...an AR'_3 group..." lacks proper antecedent basis and unclear.

Re claim 126, "...said cyclic Group IVA..." lacks proper antecedent basis.

Re claim 154, "...cyclic Group IVA compounds..." lacks proper antecedent basis.

Re claims 159,201, "high solubility" is relative and unclear for how high.

Appropriate correction is required.

Election/Restrictions

*** After reconsideration the teachings of Shiho reference, claims 96,100-101,105-110,113-117,124,126-131,132,139-143,149-150,152-154,173-174,176,177-184,192-197 are also considered and examined in this office action, as restriction of these claims are withdrawn. Restriction of species of claims 97-98,118-119,121-123,133-134,144-148,155-159,175,185-191,198-203 are still maintained. Claims 41 and 166 are generic claims. It is noted that this application contains claims directed to the following patentably distinct species of having the passivation layer in claim 96 with claim 97 comprising an alcohol, claim 98 comprising hydrogen and claim 99 comprising a surfactant; and other species of having a solvent, wherein the solvent is a aprotic (e.g. claim 118) or apolar (e.g. claim 119+), or a gas-phase dipole (e.g. claim 144); and other species of removing the solvent and cleaning; etc. The species are distinct because claims to the different species recite the mutually exclusive characteristics of such

species. In addition, these species are not obvious variants of each other based on the current record.

There is an examination and search burden for these patentably distinct species due to their mutually exclusive characteristics. The species require a different field of search (e.g., searching different classes/subclasses or electronic resources, or employing different search queries); and/or the prior art applicable to one species would not likely be applicable to another species; and/or the species are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph. If the reply does not distinctly and specifically point out supposed errors in the election of species requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected species.

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the species unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other species.

Claims 41 and 166 are generic claims. Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to *additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141*. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Claim Rejections - 35 USC § 103

2. Claims 41,43-44,46,56-61,96,103-108,109-117,124-131,132,139-143,149,150,152-154,165,166-167,169-174,178-184,194-197 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiho et al (2003/0045632) taken with Jacobson et al (6,294,401), Piwcyzk (4,022,928), and Beppu et al (5,866,471).

Re base claims 41,166: Shiho teaches (at paragraphs 38-93) a method for making a semiconductor film comprising at least the steps of: a) using one of an inkjet printing (re further claim 56), an offset printing, a screen printing, etc., (paragraphs 110,153,54-64,162-167) for printing a solution composition comprising semiconductor nanoparticles, a first cyclic Group IVA compound of the formula Si_nR_m, n is an integer of 3 or more and m is integer of 2n+2, wherein Si_nH_{2n+2} (n is of 2 to 8), or Si_iH_{2j} (j is of 2 to 8) or Si_kH_k (k is 6,8, or 10) are mentioned at paragraphs 18,44 (re also claims 103-108,178,179), which formula of Shiho reads on the claimed formula of $(AH_x)_n$, with A is Si, n is 3 to 8, and x is 1 or 2; and a solvent (paragraphs 0102-0103,153) in a pattern/film on a substrate, wherein by the application of the liquid material the patterning may be carried out at the same time by the ink jet method (paragraph 153); and b) curing said printed solution composition pattern/film to form said patterned semiconductor film (paragraphs 117,120,127,137,138), wherein curing the printed pattern comprises irradiating the printed pattern (paragraphs 138,113,137,120,153). Re further claims 43-44, wherein the composition comprises semiconductor silicon nanoparticles (paragraphs 60-64) that are dispersed in the silane composition. Re claims 111-112, wherein the composition including both first and second cyclic group IVA compound of silicon and dopants of B, P, As (at paragraphs 38-93), herein Si_nH_{2n+2} is mentioned at paragraph 44, wherein dopants of B, P, and As with at least alkyl group are mentioned at paragraphs 76-82. Re claims 46,58,169 wherein curing by heating so as to sintering the semiconductor film so as to dry the semiconductor film (paragraphs 117,120,137-138), wherein curing comprises irradiating the composition (paragraphs 120,138). Re claims 58-59,169-172, 125-127, wherein curing by heating so as to sintering the semiconductor film so as to dry the semiconductor film at a temperature at least about 200°C (paragraphs 117,120,137-138), wherein sintering temperature is at least about 300°C (paragraphs 117,120,137-138). Re claims 60-61, wherein the curing heat treatment is evacuated so as to treat in an inert argon gas or reducing hydrogen gas in chamber, inherently (paragraphs 117, 137). Re claims 124,149, wherein a surfactant of about 0.1 to 5 part is included into the solution (paragraphs 96,101). Re claims 131,153-154, wherein curing the printed pattern by irradiating (paragraphs 138,113,137,120,153) the printed pattern with a light to cure it, and to polymerize the irradiated portions, thereby render it insoluble polymer, inherently, and thereby resist subsequent treatment with processing solvent. Re claims 150,152,196,197, wherein the

substrate comprising a glass or plastic window with two dimensional array of fields thereon for production of an array of solar cells (paragraphs 133,148-151). Re claim 165, wherein the formula is Si_nR_m, n is an integer of 3 or more and m is integer of 2n+2, wherein Si_nH_{2n+2} (n is of 2 to 8), or Si_iH_{2j} (j is of 2 to 8) or Si_kH_k (k is 6,8, or 10) are mentioned at paragraphs 18,44, wherein dopants of B, P, and As with at least alkyl group are mentioned at paragraphs 76-82, which is corresponding to claimed formula (1):(AHx)n, where n is from 3 to 8 and each A in the formula is independently Si, and/or a second cyclic Group IVA compound of the formula (2):(AHx)m(AHyRzy)p(ZR')q, (2) where (m+p+q) is from 3 to 12, each of the m instances of x is independently 0, 1 or 2, each of the p instances of y is independently 0, 1 or 2, each of the p instances of z is independently 0, 1 or 2, each of the p instances of (y+z) is independently 1 or 2, each of the q instances of w is independently 0 or 1, at least one of p and q is at least 1, each A in the formula (2) is independently Si, Z is selected from the group consisting of B, P and As, R' is R or H, and each R in the formula (2) is independently alkyl, aryl, aralkyl, a halogen, BHsR"2s, PHsR"2-s, AsHR"2-s or AHtR".sub.3-t, where s is 0 to 2, t is 0 to 3, and R" is alkyl, aryl, aralkyl, a halogen, or AH3 (re also claims 113-15, 180-182). Re claims 116-117,139-143,183,194,195, wherein the compound is present in the solution of from 0.1 to 100 wt% (paragraphs 56-57), and wherein the amount of silicon nanoparticles is about 0.1 to 100 wt% (paragraphs 62-63).

Re base claims 41,166: Shiho already teaches (at paragraph 153) printing a solution comprising semiconductor nanoparticles to form a pattern by inkjet printing, screen printing, offset printing, etc (claims 57 also).

Shiho thus does not mention *gravure* printing (or printing by offset lithography or flexographic printing; re claims 41,57,128-130), and *passivated* semiconductor nanoparticles (claims 41,166). Re further claims 132,166, Shiho already teaches using the formula $(AH_x)_n$ where A is Si, but does not mention A is Ge.

However, *Jacobson '401* teaches (at col 5, lines 34-60; col 3, lines 36-65; col 4, lines 32-64) *gravure printing, inkjet printing*, screen printing, etc., a solution comprising ***passivated*** semiconductor nanoparticles (col 4, lines 47-67) having a capping passivation layer (re further claims 96,173) to form a patterned semiconductor film on a substrate, wherein the patterned

semiconductor film is used in forming a thin film transistor, wherein printing is performed by ink jetting the solution composition comprising a solvent and the passivated semiconductor nanoparticles onto the substrate to form a pattern (re further claim 56, col 5, lines 34-45, col 6, lines 1-10; col 4, lines 13-15; Fig 4, col 7, lines 10-20), wherein ink-jet system is configured to deliver a selected of a series of solution, colloids, and/or dispersion of one or more materials, wherein the nanoparticles may be passivated at the surface by an organic capping group which is largely determined the solubility of the nanoparticles including silicon (col 4, lines 48-64, re further claims 43-44,174); wherein the composition solution comprising the passivated semiconductor nanoparticles and the solvent is printed on the substrate by using any of wide variety of gravure printing, inkjet printing, screen printing, and lithography, a pattern onto the substrate (re further claim 57); and wherein the passivated semiconductor nanoparticles can be dissolved/soluble or dispersed in the solvent. *Piwcyzk* further teaches employing one of several well known printing methods including *gravure printing, printing by offset lithography, screen printing, or flexographic printing* (at col 9, line 48 to col 10, line 68) for printing a pattern onto a substrate. *Beppu et al* teach (at col 5, line 16 to col 7; col 6, lines 29-35,1-20; col 5, lines 30-35; col 7, lines 35-67, re claim 166) forming a semiconductor film by employing a semiconductor material including silicon (Si) and/or germanium (Ge), and employing a cyclic polysilane or polygermanium including *cylogermane for germanium* or cyclosilagermane for silicon and germanium (re also claims 166,132,182,184).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the semiconductor pattern of Shiho by using one of a wide variety of inkjet printing, gravure printing, printing by offset lithography, flexographic printing, offset printing, or screen printing, to printing a solution composition comprising passivated semiconductor nanoparticles and a solvent onto a substrate to form a pattern, as taught by Jacobson '401, Piwcyzk and Shiho, because these printing methods including gravure printing, printing by offset lithography, flexographic printing, inkjet printing, screen printing, etc., are art recognized equivalent methods and alternative for printing to form a pattern onto a substrate in an effective and reliable manner. Employing a semiconductor material including silicon and/or germanium, by using a cyclic polysilane or polygermanium, cylogermane for germanium or cyclosilagermane for silicon and germanium, as taught by Beppu et al would have been obvious

to one of ordinary skill in the art, because these materials are semiconductor materials, alternative, and art recognized equivalent materials used for forming a semiconductor device. Additionally, it would have been obvious to one of ordinary skill in the art at the time the invention was made to print a solution comprising semiconductor nanoparticles to form the semiconductor pattern of Shiho by employing the passivated semiconductor nanoparticles, as taught by Jacobson et al '401. This is because of the desirability to able to determine the solubility of the nanoparticles in an appropriate solvent for carrying the nanoparticles in an effective manner, thereby enable to print highly ordered semiconductor thin film onto a substrate. Moreover, it would have been obvious because a person of ordinary skill in the art would have been motivated to combine the prior art to achieve the claimed invention and that there would have been a reasonable expectation of success when employing a composition solution in printing methods of ink jet printing, gravure printing, printing by offset lithography, flexographic printing, because "a person of ordinary skill has a good reason to pursue the known options within his or her technical grasp. If this lead to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense" for forming a plurality of semiconductor patterns on a substrate, and because these printing methods as particular known techniques were recognized as part of the ordinary capabilities. In re Supreme Court Decision in KSR International Co. v. Teleflex Inc. 82 USPQ2d, 1385 (2007). This is also because of the desirability to form an array of lines of patterned semiconductor films having a desired dimensions on the substrate, and for used in manufacturing a plurality of semiconductor device. The subject matter as a whole would have been obvious to one or ordinary skill in the art at the time the invention was made to select the portion of the prior art's range of value for x and n in the formula, and prior art's range of temperature, as taught by Shiho, Jacobson '401, and Beppu, which is within the range of applicant's claims, because it has been held to be obvious to select a value in a known range by optimization for the best results, and would be an unpatentable modification, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation". *In Re Aller* 104 USPQ 233,255 (CCPA 1955); *In re Waite* 77 USPQ 586 (CCPA 1948); *In Re Swanson* 56 USPQ 372 (CCPA 1942); *In Re Sola* 25 USPQ 433 (CCPA 1935); and *In Re Dreyfus* 24 USPQ 52 (CCPA 1934).

3. Claims 51,53-54,168,204-205 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiho et al (2003/0045632), Jacobson et al (6,294,401), Piwcyzk (4,022,928), and Beppu et al (5,866,471), as applied to claims 41,43-44,46,56-61,96,103-108,109-117,125-130,132,139-143,150,152,165,166-167,169-174,178-184,194-197 above, and further of Tani et al (5,254,439).

The references including Shiho, Jacobson, Piwcyzk and Beppu teach a method for making a semiconductor film as applied to claims 41,43-44,46,56-61,96,103-108,109-117,125-130,132,139-143,150,152,165,166-167,169-174,178-184,194-197 above. Jacobson '401 teaches (at col 5, lines 34-60; col 3, lines 36-43) printing a composition of semiconductor nanoparticles to form a patterned semiconductor film on a substrate by using any of variety including spin coating, casting, screen printing, stamping, wherein the printing of the composition with solvent includes screen printing, gravure printing, lithography. Beppu et al teach (at col 5, line 16 to col 7; col 6, lines 29-35; col 5, lines 30-35; col 7, lines 35-67) forming a semiconductor film by employing a semiconductor material including silicon and/or germanium, and employing a cyclic polysilane or polygermanium (cylogermane for germanium or cyclosilagermane for silicon and germanium). Shiho also teaches (at paragraph 110) depositing the composition by inkjet printing, spray coating, spin coating, and irradiating the composition with an ultraviolet light (paragraph 138).

The references including Shiho thus lack selectively irradiating the composition through a mask (claims 51-54) before curing (204-205).

However, Tani teaches (at Figs 2,3; col 5, line 60 through col 6) selectively irradiating the layer through a mask aligned on substrate as marked, and removing a portion of the layer after irradiating in order to form a plurality of patterned layers.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to pattern the semiconductor film of the references including Shiho and Jacobson '401 by selectively irradiating through a mask and removing a portion of the layer as taught by Tani before curing the semiconductor film of Shiho. This is because these patterning techniques are alternative and art recognized equivalent for substitution in forming distinct patterned semiconductor films on the substrate so as a plurality of semiconductor thin film transistors can be fabricated at the same time.

4. Claims 62-65,160-164 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiho et al (2003/0045632), Jacobson et al (6,294,401), Piwcyzk (4,022,928), and Beppu et al (5,866,471), as applied to claims 41,43-44,46,56-61,96,103-108,109-117,125-130,132,139-143,150,152,165,166-167,169-174,178-184,194-197 above, and further of Kim et al (6,355,198).

The references including Shiho, Jacobson, Piwcyzk and Beppu teach a method for making a semiconductor film as applied to claims 41,43-44,46,56-61,96,103-108,109-117,125-130,132,139-143,150,152,165,166-167,169-174,178-184,194-197 above.

Shiho already teaches inkjet printing a semiconductor film having a thickness, particularly preferably of 0.01 to 5μm (paragraph 0110), while claims 62-65 and 160-164 recite an array of lines having a width of from 50nm to 50μm, a length of from 2 to 2000μm , and a thickness of from 0.01 to 500 μm.

However, Kim teaches (at Figs 1,15,16; col 34, lines 13-50) printing and curing a composition to form an array of lines having a typical width of from 1μm to 10μm, a length of from 100μm , and a thickness as similar to a width and spacing of from 1μm to 10μm.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the semiconductor film of Shiho as an array of lines of a patterned semiconductor film having a typical width of from 1μm to 10μm, a length of from 100μm , and a thickness as similar to a width of from 1μm to 10μm by inkjet printing, gravure printing, offset printing, as taught by Kim, Jacobson, Piwcyzk, and Shiho above. This is because of the desirability to form an array of lines of patterned semiconductor films having a desired dimensions on the substrate, and for used in manufacturing a plurality of semiconductor device.

The subject matter as a whole would have been obvious to one or ordinary skill in the art at the time the invention was made to select the portion of the prior art's range of thickness, as taught by Kim and Shiho, which is within the range of applicant's claims, because it has been held to be obvious to select a value in a known range by optimization for the best results, and would be an unpatentable modification, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation". *In Re Aller* 104 USPQ 233,255 (CCPA 1955); *In re Waite* 77 USPQ 586

(CCPA 1948); *In Re Swanson* 56 USPQ 372 (CCPA 1942); *In Re Sola* 25 USPQ 433 (CCPA 1935); and *In Re Dreyfus* 24 USPQ 52 (CCPA 1934).

5. Claims 100,101,135-138,176,177,192,193 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiho et al (2003/0045632), Jacobson et al (6,294,401), Piwcyzk (4,022,928), and Beppu et al (5,866,471), as applied to claims 41,43-44,46,56-61,96,103-108,109-117,125-130,132,139-143,150,152,165,166-167,169-174,178-184,194-197 above, and further of Korgel (2003/0034486).

The references including Shiho, Jacobson, Piwcyzk and Beppu teach a method for making a semiconductor film as applied to claims 41,43-44,46,56-61,96,103-108,109-117,125-130,132,139-143,150,152,165,166-167,169-174,178-184,194-197 above.

Shiho already teaches (at paragraphs 0061-0062) forming silicon particles having a diameter of from 0.005 micron (5 nm as 1 micron equals to 1000nm), while claims 135-138,100-101,176-177, and 192-193 recite silicon particles having an average diameter of less than 5 nm or 3.5 nm.

However, Korgel teaches (at col 15, lines 12-30) forming silicon particles comprising nano-particles having an average diameter of about 5 nm, 3.5 nm, or 2 nm. Jacobson '401 teaches (at col 6, lines 40-43; col 4, lines 25-30, lines 44-46) forming nanoparticles having a size below 2.5 nm.

The subject matter as a whole would have been obvious to one or ordinary skill in the art at the time the invention was made to select the portion of the prior art's range of average diameter of silicon particles, as taught by Korgel and Jacobson, which is within the range of applicant's claims, because of the desirability to form silicon nanoparticles for forming very small devices, and because it has been held to be obvious to select a value in a known range by optimization for the best results, and would be an unpatentable modification, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation". *In Re Aller* 104 USPQ 233,255 (CCPA 1955); *In re Waite* 77 USPQ 586 (CCPA 1948); *In Re Swanson* 56 USPQ 372 (CCPA 1942); *In Re Sola* 25 USPQ 433 (CCPA 1935); and *In Re Dreyfus* 24 USPQ 52 (CCPA 1934).

Response to Amendment

*** Applicant's remarks filed April 28, 2009 with respect to pending claims have been considered but are moot in view of the new ground(s) of rejection.

Applicant's remarks about "...gravure printing, printing by offset lithography, or flexographic printing..." are noted.

In response, the references including Jacobson '401 and Piwcyzk teach printing by using any of wide variety of printing methods including gravure printing, printing by offset lithography, or flexographic printing, and inkjet printing.

Applicant's remarks about " ...cyclogermane or cyclosilagermane...".

In response, the second reference of Beppu clearly teaches (at col 5, line 16 to col 7; col 6, lines 29-35; col 5, lines 30-35; col 7, lines 35-67) forming a semiconductor film by employing a semiconductor material including silicon and/or germanium, and employing a cyclic polysilane or polygermanium (as the cylogermane for germanium or cyclosilagermane for silicon and germanium). It is well settled that one can not show non-obviousness by attacking the references individually where, as here, the rejection is based on combinations of references. In re Young, 403 F.2d 754,159 USPQ 725 (CCPA 1968); In re Keller 642 F.2d 413, 208 USPQ 871 (CCPA 1981). Moreover, the rejection is not overcome by pointing out that one reference does not contain a particular limitation when reliance for that teaching is on another reference. In Re Lyons 150 USPQ 741 (CCPA 1966).

Moreover, it would have been obvious because a person of ordinary skill in the art would have been motivated to combine the prior art to achieve the claimed invention and that there would have been a reasonable expectation of success when employing a composition solution in the ink jet printing method, and because "a person of ordinary skill has a good reason to pursue the known options within his or her technical grasp. If this lead to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense" for forming a plurality of semiconductor patterns on a substrate, and because ink jet printing method is a particular known technique was recognized as part of the ordinary capabilities. In re Supreme Court Decision in KSR International Co. v. Teleflex Inc. 82 USPQ2d, 1385 (2007).

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael M. Trinh whose telephone number is (571) 272-1847. The examiner can normally be reached on M-F: 9:00 Am to 5:30 Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra Smith can be reached on (571) 272-2429. The central fax phone number is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).
Oacs-21

/Michael Trinh/
Primary Examiner, Art Unit 2822